

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter I of the Patent Cooperation Treaty)

(PCT Rule 44bis)

Applicant's or agent's file reference PSD-9014WO	FOR FURTHER ACTION	See item 4 below
International application No. PCT/JP2004/014575	International filing date (<i>day/month/year</i>) 28 September 2004 (28.09.2004)	Priority date (<i>day/month/year</i>) 30 September 2003 (30.09.2003)
International Patent Classification (8th edition unless older edition indicated) See relevant information in Form PCT/ISA/237		
Applicant SODE, Koji		

1. This international preliminary report on patentability (Chapter I) is issued by the International Bureau on behalf of the International Searching Authority under Rule 44 bis.1(a).

2. This REPORT consists of a total of 4 sheets, including this cover sheet.

In the attached sheets, any reference to the written opinion of the International Searching Authority should be read as a reference to the international preliminary report on patentability (Chapter I) instead.

3. This report contains indications relating to the following items:

- | | | |
|-------------------------------------|--------------|---|
| <input checked="" type="checkbox"/> | Box No. I | Basis of the report |
| <input type="checkbox"/> | Box No. II | Priority |
| <input type="checkbox"/> | Box No. III | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability |
| <input type="checkbox"/> | Box No. IV | Lack of unity of invention |
| <input checked="" type="checkbox"/> | Box No. V | Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement |
| <input type="checkbox"/> | Box No. VI | Certain documents cited |
| <input type="checkbox"/> | Box No. VII | Certain defects in the international application |
| <input type="checkbox"/> | Box No. VIII | Certain observations on the international application |

4. The International Bureau will communicate this report to designated Offices in accordance with Rules 44bis.3(c) and 93bis.1 but not, except where the applicant makes an express request under Article 23(2), before the expiration of 30 months from the priority date (Rule 44bis .2).

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland	Date of issuance of this report 26 June 2006 (26.06.2006)
Facsimile No. +41 22 338 82 70	Authorized officer <div style="text-align: center; font-weight: bold;">Masashi Honda</div> e-mail: pt08@wipo.int

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

TRANSLATION

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

To:

Date of mailing
(day/month/year)

Applicant's or agent's file reference

PSD-9014WO

FOR FURTHER ACTION

See paragraph 2 below

International application No.

PCT/JP2004/014575

International filing date (day/month/year)

28.09.2004

Priority date (day/month/year)

30.09.2003

International Patent Classification (IPC) or both national classification and IPC

Applicant

SODE, Koji

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA/JP

Authorized officer

Facsimile No.

Telephone No.

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/JP2004/014575

Box No. I Basis of this opinion

1. With regard to the language, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐

This opinion has been established on the basis of a translation from the original language into the following language

_____, which is the language of a translation furnished for the purposes of international search (under Rule 12.3 and 23.1(b)).

2. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:

a. type of material

☒

a sequence listing

☐

table(s) related to the sequence listing

b. format of material

☐

in written format

☒

in computer readable form

c. time of filing/furnishing

☐

contained in the international application as filed.

☒

filed together with the international application in computer readable form.

☐

furnished subsequently to this Authority for the purposes of search.

3. ☒ In addition, in the case that more than one version or copy of a sequence listing and/or table(s) relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

4. Additional comments:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.

PCT/JP2004/014575

Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	1-15	YES
	Claims		NO
Inventive step (IS)	Claims		YES
	Claims	1-15	NO
Industrial applicability (IA)	Claims	1-15	YES
	Claims		NO

2. Citations and explanations:

Document 1: WO, 02-073181 A (Koji HAYADE), 19 September, 2002 (19.09.02)

Document 2: JP, 2002-125689, A (Koji HAYADE), 8 May, 2002 (08.05.02)

Document 3: J. Biol. Chem., 2002, Vol. 277, No. 5, pages 3727-32

Claims 1-15

The inventions described in claims 1-6 and 9-15 do not appear to involve an inventive step in view of documents 1 and 2 cited in the ISR.

Document 1 describes that (1) pyrroloquinolinequinone glucose dehydrogenase derived from *Acinetobacter calcoaceticus* and (2) cytochrome b562, both of which were chemically bridged each other, were used as a glucose sensor to measure glucose.

Document 2 describes that fused protein obtained by fusion of (1) pyrroloquinolinequinone glucose dehydrogenase derived from *Acinetobacter calcoaceticus* and (2) a biotin bound portion was used as a glucose sensor to measure glucose.

Regarding claims 1-6, and 9-15, a person skilled in the art could have easily arrived at using fused protein, as described in document 2, in combining (1) pyrroloquinolinequinone glucose dehydrogenase derived from *Acinetobacter calcoaceticus* and (2) cytochrome b562, both of which are described in document 1.

The inventions described in claims 7-15 do not appear to involve an inventive step in view of documents 1-3 cited in the ISR.

Document 3 describes that cytochrome B562 derived from *Comamonas testosteroni* has a function as an electron acceptor of pyrroloquinolinequinone glucose dehydrogenase.

Regarding claims 7-15, a person skilled in the art could have easily arrived at using cytochrome B562 derived from *Comamonas testosteroni* described in document 3, as cytochrome B562.